Mathematics, Statistics, and Computer Science **@ UIC**

Homotopy Theory Seminar

On the cohomology of the classifying spaces of projective unitary groups

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Abstract: Let $\mathsf{BPU}(n), \mathsf{BU}(n)$, and $\mathsf{K}(\mathbb{Z}, 3)$ denote respectively the projective unitary group of rank n, the unitary group of rank n, and the Eilenberg-Maclane space with the third homotopy group being $\mathbb{Z}$. We construct a cohomological Serre spectral sequence $E_*^{*,*}$ with $E_2^{s,t} \simeq H^s(K(\mathbb{Z}, 3), H^t(BU(n)))$ and converging to $H^*(BPU(n))$. Moreover we determine all of its differentials. This enables us to calculate $H^*(BPU(n))$ up to extension.

Friday, August 26 at 12:30 PM in SEO 1227